

Atty. Docket No. ADV12 P-300A

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Art Unit : 1761
Examiner : Thuy Tran Lien
Applicants : Cheree L. B. Stevens et al.
Appln. No. : 09/778,470
Filing Date : February 7, 2001
Confirmation No. : 4695
For : **WATER-DISPERSIBLE COATING COMPOSITION
FOR FRIED FOODS AND THE LIKE**

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FOURTH DECLARATION OF JOHN STEVENS

I, John Stevens, do hereby declare as follows:

1. I am the Vice President for Research and Development for Advanced Food Technologies, assignee of the present patent application. I graduated from Cornell University with a Food Science Degree in 1970. I have had over 30 years experience in the food science industry. I have had extensive experience specifically in the food coatings area for 14 years, since 1989.

2. From 1989 to 1991, I was the Research and Development Manager for Universal Foods Corporation, where I directed coated french fry developments which resulted in 60 million dollars in additional annual sales for the company. I developed the first clear coat french fry, now having estimated market sales of over 1 billion pounds per year.

3. From 1991 to 1994, I was Director of Technical Services for McCain Foods, Inc. I directed all of the potato food coatings research for McCain Foods, Inc., including the development of marketed coatings.

4. From 1994-1996, I was the Research Manager for Miles Willard Company, directing all frozen and non-snack dehydrated potato development, including the development of a patented clear coat french fry product.

5. From 1996-1999, I was the Director of Northwest Region Technical Services for Newly Weds Foods, Inc. I established, staffed and directed all formula, process, specification, and commercialization of seasoned and clear coat french fry batters for all french fry processors and chain accounts throughout the United States. I developed and

commercialized a signature clear coat french fry for a major processor and for a major national chain account.

6. From 1999 to date, I have served as the Vice President of Research and Development for Advanced Food Technologies, Inc.

7. In my opinion, the ratio of rice component to dextrin component claimed in the present application is critical and produces surprising and unexpected results.

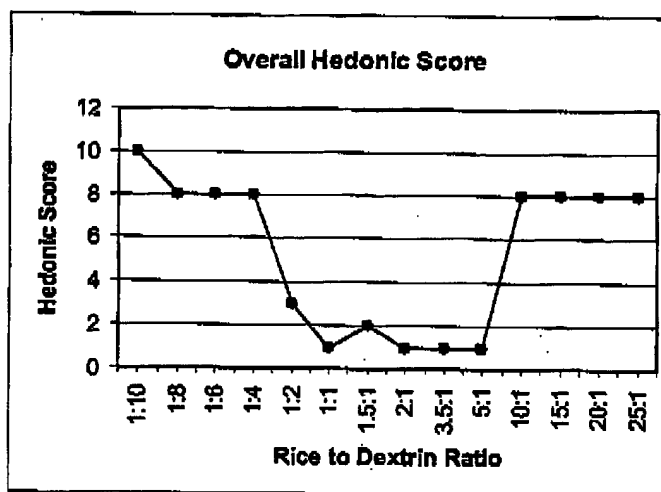
8. I supervised a laboratory experiment to test the crispness, toughness, tooth compaction and Munsell color of a food coating composition as applied to a french fried potato substrate. In order to demonstrate the unexpected results of the presently claimed invention, I compared the ratios of the claimed invention, namely a ratio of rice component to dextrin component of from about 1:2 to about 5:1, to a broader range of ratios outside of this range. I tested ratios above the claimed range, namely ratios of 1:10, 1:8, 1:6 and 1:4, and ratios below the claimed range, namely 10:1, 15:1, 20:1 and 25:1. The Control was a 2:1 ratio of rice component to dextrin component and was rated exactly as the 2:1 ratio sample demonstrated in the following results.

9. I conducted and supervised this experiment along with three other panelists (hereinafter collectively "Sensory Panelists"). The Sensory Panelists are only chosen if they do not smoke, do not have food allergies, and do not have any conditions which may affect their sense of taste, smell, feel and sight. The Sensory Panelists are specially trained to be familiar with the test methods, improve their ability to identify sensory attribute and improve their memory for test attributes. The Sensory Panelists are trained in french fry processing and french fry product quality attributes such as appearance, defects, texture and flavor, with particular attention given to heat lamp holding and its effects on the fry sensory attributes. The Sensory Panelists are also provided with actual samples to demonstrate various product descriptions for appearance and texture, including crispness, toughness, tooth compaction, and identification of the product's Munsell Color. The Sensory Panelists are also provided with demonstrations regarding the "life" of a french fry under a heat lamp, including flavor, aroma and texture. The Sensory Panelists are then trained on test procedure and the product evaluation form. The form is divided into appearance and texture questions, with further divisions relating to the specific attributes being tested. The Sensory Panelists next combine

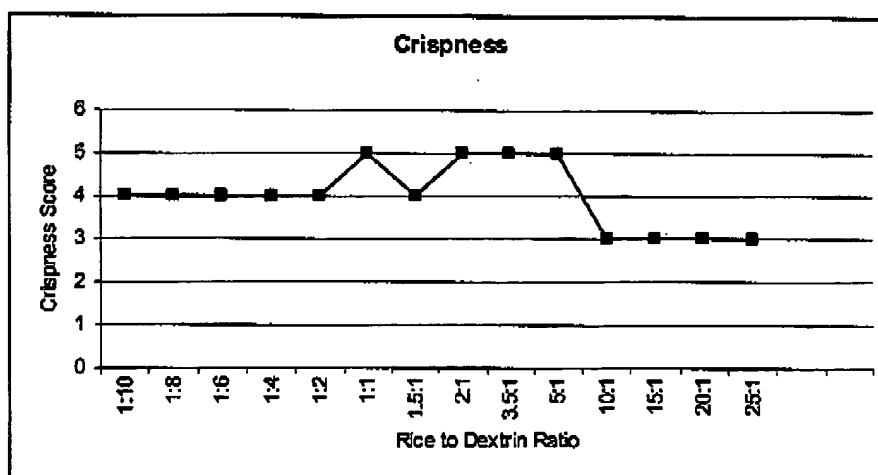
the scores of each of the product descriptions, such as crispness (as discussed more fully in paragraph 12), toughness (as discussed more fully in paragraph 13), tooth compaction (as discussed more fully in paragraph 14), and identification of the Munsell score (as discussed more fully in paragraph 15), to calculate the overall Hedonic score for each substrate (as discussed more fully in paragraph 11).

10. The samples were prepared in the following manner as dry mixes. One hundred count potatoes (substrate) were peeled to remove the skin, then cut using a 0.300" cross-sectional raw cut blade set giving a Long Fancy length grade (2-inch to 4-inch lengths). The substrate was blanched at about 180-185°F for about seven minutes until just slightly crisp. The substrate was dipped in 0.5% SAPP/1.0 % salt/water solution at 140°F for 40 seconds. The substrate was dried in a forced-air convection oven on "high" fan speed at 160°F for 14 minutes to get about 10-11% moisture loss, turning the substrate once half way through. The wet batter slurries were next prepared at 40% WBS (wet batter solids). In a five quart Kitchen-Aid, dry batter was wire whipped with the water and mixed for one minute on stir speed. Next, the edges were scraped and mixed for five more minutes on speed level 2. Fifty-five grams of the raw substrate was next coated with batter having one of the rice to dextrin ratios tested, and then blown off lightly with an air knife, giving the Control a pick-up of 18-20%. The substrate is then par-fried for approximately 50 seconds at 365°F in a deep fryer. The substrate was frozen for at least 24 hours and then reconstituted at the following specifications: 1.5 pounds at 350°F for 2.5 minutes. The substrate is then placed under a heat lamp, lightly salted, and evaluated over ten minutes.

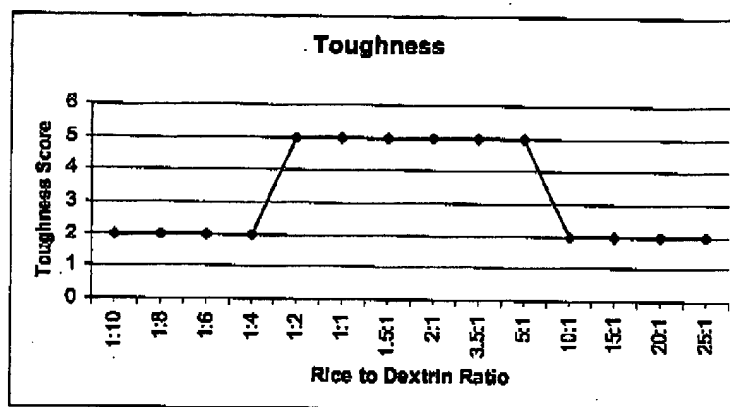
11. The Overall Hedonic Score of each sample is displayed in the graph below. The Overall Hedonic Score refers to a comparative score of products against a control product after reviewing all of the individual sensory parameter scores for each product, namely, crispness, toughness, tooth compaction and Munsell color results of the food coating composition as applied to a french fried substrate. A hedonic score of "1" ranks as the best possible product and a score of "10" ranks as the worst possible product. As you can see from the graph below, the samples which displayed the best Overall Hedonic Score were those samples comprising a ratio of rice component to dextrin component of from about 1:2 to about 5:1.



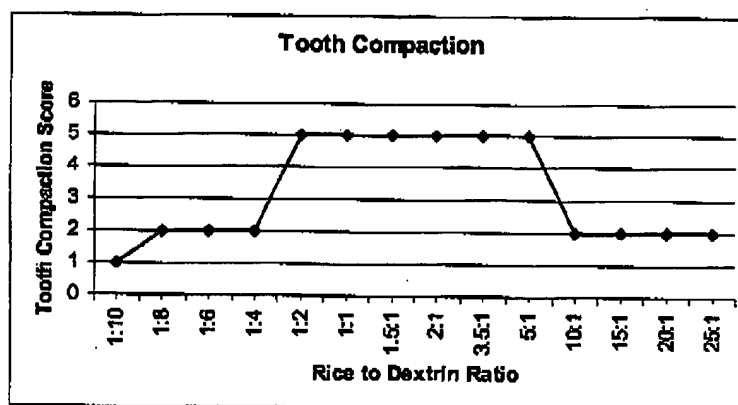
12. Crispness refers to the 'crack' (i.e. - hardness, brittleness) of the surface of the substrate as compared to the internal texture. The Sensory Panelists were given a five-point hedonic scale for rating the Crispness of the substrate as either 'Definitely Crisp' (which corresponded to a score of 5), 'Moderately Crisp' (which corresponded to a score of 4), 'Somewhat Crisp' (which corresponded to a score of 3), 'Slightly Crisp' (which corresponded to a score of 2), or 'No Crispness at all (Limp)' (which corresponded to a score of 1). As typically one of the key functions of the coating is to provide crispness, the best score would be 5 - Definitely Crisp. The below data demonstrates crispness after 10 minutes under a heat lamp.



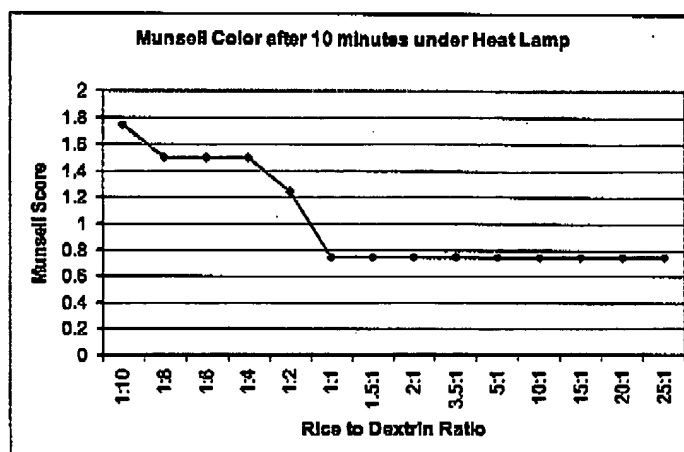
13. Toughness refers to the chewiness and elasticity of the coating as compared to the internal texture of the substrate. The Sensory Panelists were given a five-point hedonic scale for rating the Toughness of the substrate as either 'No Toughness at all' (which corresponded to a score of 5), 'Slightly Tough' (which corresponded to a score of 4), 'Somewhat Tough' (which corresponded to a score of 3), 'Moderately Tough' (which corresponded to a score of 2), or 'Definitely Tough' (which corresponded to a score of 1). As chewiness in a coating is typically undesirable, the best score would be 5 - No Toughness at all. The below data demonstrates toughness after 10 minutes under a heat lamp.



14. Tooth compaction refers to how much of the coating adheres to one's teeth while chewing the substrate. The Sensory Panelists were given a five-point hedonic scale for rating the Tooth Compaction of the substrate as either 'No Tooth Compaction' (which corresponded to a score of 5), 'Slight Tooth Compaction' (which corresponded to a score of 4), 'Some Tooth Compaction' (which corresponded to a score of 3), 'Moderate Tooth Compaction' (which corresponded to a score of 2), or 'Definite Tooth Compaction' (which corresponded to a score of 1). As coatings should not typically leave chewy fractions, the best score would be 5 - No Tooth Compaction. The below data demonstrates tooth compaction after 10 minutes under a heat lamp.



15. The Sensory Panelists also rated the substrates according to the Munsell Color test after ten (10) minutes under the heat lamp. The United States Department of Agriculture issues the Munsell Color Standards for Frozen French Fried Potatoes (Exhibit A), which designates a score to the different shades of color that is found on a french fried substrate. The score ranges from 000 to 4 (4 being very dark). Typically, "0" to "3/4" Munsell color is preferred, since much lighter product will typically look uncooked and much darker will typically look and probably taste burnt.



16. In my opinion, these results demonstrate the surprising and unexpected results which are found by using the food coating composition claimed in the present invention comprising a ratio of rice component to dextrin component of from about 1:2 to about 5:1 and the criticality of this ratio.

17. All statements made herein of my own knowledge are true and all statements made on information and belief are believed to be true, and further, these statements are made with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under 18 U.S.C. § 1001, and that such willful false statements may jeopardize the validity of this application or any patent issued thereon.

July 24, 2006
Date

John F. Stevens
John Stevens